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ABSTRACT

The forced-choice and a questionnaire format of the Thorndike Dimensions of Temperament were administered under regular and desirability directions to college students. The forced-choice format produced low scale intercorrelations under the regular directions, but under the desirability directions a common factor appeared. The same factor appeared in the questionnaire format under both the regular and desirability directions. The forced-choice format under the regular directions also produced mean scores that were generally below the neutral point of the scales, while under the other three conditions of administration the mean scores were generally above. These data are interpreted as showing that the forced-choice format cannot prevent subjects from presenting a more favorable image of themselves if they choose to do so, but that this problem is normally less in the forced-choice than in the questionnaire format. In the questionnaire format there is a stronger effect of a social desirability factor which increases the mean scores on the scales and the variance from individual differences in the tendency to respond in a self-regarding manner. The increased variance from a social desirability factor produced correlations between items from the different scales which obscures the differential measurement of the traits. (Author)

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EFFECT OF THE RESPONSE FORMAT ON THE DIFFERENTIAL MEASUREMENT OF TRAITS IN THE THORNDIKE DIMENSIONS OF TEMPERAMENT PERSONALITY INVENTORY

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The forced-choice and a questionnaire format of the Thorndike Dimensions of Temperament were administered under regular and desirability directions to college students. The forced-choice format produced low scale intercorrelations under the regular directions, but under the desirability directions a common factor appeared. The same factor appeared in the questionnaire format under both the regular and desirability directions. The forced-choice format under the regular directions also produced mean scores that were generally below the neutral point of the scales, while under the other three conditions of administration the mean scores were generally above.

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The forced-choice structure of the Thorndike Dimensions of Temperament (TDOT) stems from the fact that research has pointed to the importance of a social desirability factor as a determiner of response to personality inventory items (Thorndike, 1966). The social desirability factor (individual differences in the tendency to respond in a self-regarding vs. self-critical manner) produces correlations between items from different scales which obscures the differential measurement of the traits the scales are designed to measure[1]. It is assumed that the blurring of the traits can be prevented by requiring a choice among items from different scales which have been matched for desirability in a forced-choice format.

The forced-choice format of the TDOT is somewhat distinctive. The examinee is presented with a set of ten statements of approximatley equal endorsement popularity,

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[1]The trait names are Sociable, Ascendant, Cheerful, Placid, Accepting, Though-Minded, Reflective, Impulsive, Active, and Responsible.

with each statement representative of a different trait. There are 20 such sets of statements. In each set the examinee chooses the three statements which he considers are most like him and the three which he considers are least like him. Each trait is represented by a statement which may be worded toward one or the other pole of the trait. For scoring purposes, a positive and negative pole for each trait has been designated. The trait score is the difference in the sum of the ratings for the positively and negatively worded items. Since each set of items contains both positively and negatively worded statements, the ten scores for each examinee do not have to add up to the same total. An examinee can have generally "high" scores by choosing the positively worded statements as most like him and the negatively worded statements as least like him, or generally "low" scores by having just the opposite response pattern. This feature of the TDCT reduces an undesirable effect of forced-choice methodology, in that it avoids the necessarily negative average correlation between scales that characterize the usual forced-choice format.

The present study compares the forced-choice format of the TDCT with a questionnaire format. The questionnaire type format is more commonly used in personality inventories. There appears to be a need for this type of study since criticisms have been raised about the rationale for forced-

choice methodology. For example, investigators (Messick, 1960; Scott, 1963; Wiggins, 1966) have claimed that equating items on the basis of the mean index of desirability should only be partially effective in controlling response bias, since the items could only be equated on one of a number of possible desirability dimensions. Other investigators (Block, 1965; Norman, 1967) question the importance of the social desirability variable in determining response to personality inventory items.

Procedure

A comparison was made between the forced-choice and a questionnaire format of the TDOT. A separate group took each format, and each format was administered under both regular and desirabil ty directions. The subjects for the study were 105 female undergraduate students at Hunter College of the City University of New York taking different sections of a course in educational psychology. The subjects were asked to put their name on the answer sheet. Fifty-one subjects took the forced-choice format, and 54 subjects took the questionnaire format.

The first set of directions for the forced-choice format was the published directions. For the second administration of the inventory, the subjects were told to

select the three statements in each set of ten which were the most desirable and the three which were the least desirable. They were to answer on the basis of their personal values, what they considered desirable.

The order in which the items in the questionnaire format were presented was the same as that for the forced-choice format, except there was no visual break between the sets. At the first administration, the subjects were asked to rate how similar they were to the person described by each statement. A 4-point rating scale was used. At the second administration, the subjects were asked to rate the degree of desirability of the behavior described by each statement based on their personal values. For this rating, a 5-point scale was used.

Results

The total sum of squares of the subjects' ratings of the items was partitioned into components arising from the difference in the mean rating of the subjects, the mean rating of the items, and the residual, which is unexplained by these two other sources of variance. In a set of items of heterogenous content, it is desirable that the residual component be as large as possible. This can be seen from the fact that reliable between subject variation would

indicate that the presumably heterogenous set of items was actually measuring a common trait; and the purpose of matching items for desirability in forced-choice methodology is to reduce the perceived difference in the desirability of the items and the resulting variation in the mean ratings.

The TDGT provides two equivalent sets of heterogenous items due to the fact that the items are worded for both poles of a trait. Table 1 shows separate analyses for the positively and negatively worded items under the two types of directions (regular and desirability) in the two formats(forced-choice and questionnaire). An examination of the first set of analyses in Table 1--for the items scored in the positive direction and administered under regular directions--will show the differences in response in the forced-choice and questionnaire format. The percentage of the total sums of squares accounted for by the residual variation is greater in the forced-choice than in the questionnaire format--98% compared to 72%. The results for the items scored in the negative direction are similar--89% compared to 75%. These differences can be accounted for by the differences in the between item variation. Matching items for popularity in the forced-choice format appears to control this variation.

Insert Table 1 about here

Table 1

Analysis of Variance of the Positively and Negatively Worded Items Under Regular and Desirability Directions in the Forced-Choice and Questionnaire Formats

Items and source	Forced-Choice			Questionnaire		
	% of Total SS	df	MS	% of Total SS	df	MS
Regular Directions						
Positive						
Subjects	2	50	1.18	6	53	5.89
Items	10	100	3.07	22	100	11.44
Residual	88	5000	.53	72	5300	.70
Alpha	.551			.881		
Negative						
Subjects	2	50	1.17	8	53	8.02
Items	9	98	2.88	17	98	9.43
Residual	89	4900	.54	75	5194	.76
Alpha	.533			.905		
Desirability Directions						
Positive						
Subjects	3	50	1.45	8	53	8.94
Items	21	100	6.07	27	100	17.17
Residual	76	5000	.44	65	5300	.77
Alpha	.696			.914		
Negative						
Subjects	2	50	1.40	3	53	3.81
Items	26	98	7.58	39	98	29.99
Residual	72	4900	.41	58	5194	.86
Alpha	.706			.775		

Besides the difference in the two formats which has been noted, there is also a difference in the alpha coefficients obtained from the analyses. These coefficients are a measure of the reliability of the between subject variance. The coefficients are larger in the questionnaire than in the forced-choice format--.68 and .90 compared to .55 and .53--and this indicates that the items are more highly intercorrelated due to a general response tendency. The higher intercorrelations at the item level also results in higher intercorrelations among the trait scales. In the questionnaire format, the Cheerful, Placid, and Accepting scales had a mean intercorrelation of .57; and the Ascendant, Active and Responsible scales had a mean intercorrelation of .51. The dimensions underlying these clusters are also moderately correlated. In contrast to this finding, there is no identifiable cluster of intercorrelated scales in the forced-choice format.

In evaluating the above findings a question may be raised as to whether the lower intercorrelations are due solely to the artifact of the forced-choice structure. The data obtained from the administration of the inventory under desirability directions helps to resolve this question. It can be seen from Table 1 that in the forced-choice format under the desirability directions, the percentages of the total sum of squares accounted for by the

between item lines is larger than that obtained under the regular directions in the same format--21% and 26% for the positively and negatively worded items compared to 10% and 9%, respectively. These figures indicate that under the desirability directions there was a greater concordance among subjects in perceiving differences in the desirability of the items. The increased salience of a desirability dimension was also reflected in the higher alpha coefficients and in the higher scale intercorrelations. A five-scale cluster consiting of the Cheerful, Placid, Responsible, Impulsive, and Sociable scales was identified. Table 2 shows the intercorrelations among these five scales for the four conditions of administration. It can be seen from this table that the mean coefficient of .37 obtained in the forced-choice format under desirability directions was similar in magnitude to the mean coefficients of .30 and .33 obtained, respectively, under regular and desirability directions for the group taking the questionnaire format. In addition, an intraclass correlation among the three sets of coefficients of .83 indicates that the patterns were also very similar.

Insert Table 2 about here

In contrast to the effect of a desirability factor under

Table 8

Intercorrelation Among Five Scales of the TDOT

Four Conditions of Administration

Scales	F-C Reg.	F-C Des.	Ques. Reg.	Ques. Des.
Cheerful vs. Placid	.37	.58	.64	.48
Cheerful vs. Responsible	-.22	.39	.37	.46
Cheerful vs. Impulsive	-.15	.09	.01	.07
Cheerful vs. Sociable	-.27	.24	.12	.20
Placid vs. Responsible	.01	.53	.45	.42
Placid vs. Impulsive	.17	.34	.31	.34
Placid vs. Sociable	-.06	.41	.26	.56
Responsible vs. Impulsive	.45	.54	.56	.50
Responsible vs. Sociable	-.06	.29	.25	.11
Impulsive vs. Sociable	.01	.25	.05	.15
Mean	.02	.37	.30	.33

regular and desirability directions in the questionnaire format, the difference in the coefficients obtained from the two forced-choice administrations is readily observable. Under the regular directions, five of the ten coefficients were negative and the mean was only .02. These results tend to support the conclusion that the independence of the scales in the forced-choice format under the regular directions is not due to the artifact of the forced-choice methodology, but to the control of a desirability factor affecting response.

An additional finding, favoring the forced-choice format, was that the correlation between the self-descriptive and desirability ratings was higher in the questionnaire format--the correlation was .47 compared to -.12. This would seem to indicate that the responses in the questionnaire format are more influenced by the desirability of the items. This conclusion is also indicated by the fact that the mean scores in the questionnaire format were generally above the neutral point of the scales, while in the forced-choice format they were generally below it.

Discussion

Previous research (Braun and Lafaro, 1967) indicates that subjects can present a more favorable image of themselves in the forced-choice format if they are directed to do so. However, it would appear from the findings of the present

study that the forced-choice format of the TDOT affords some control of a desirability factor. Evidence was presented which shows that a common factor appears under the desirability direction in the forced-choice format and in the questionnaire format under regular directions, but it does not appear under the regular directions in the forced-choice format.

Requiring an examination of statements representative of the different traits in an inventory, such as occurs in the TDOT, appears to be successful in producing the discriminations necessary for the differential measurement of personality traits. It also appears that a forced-choice format need not produce artifically negative correlations among the scales if, as occurs in the TDOT, a complete ranking of the statements in each set for self-descriptiveness is not required and the choices can be made from among statements expressed sometimes in terms of one pole of a bipolar personality dimension and sometimes in terms of the opposite pole.

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